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ABSTRACT

This study examined emotional and social competence in early adolescence, focusing on the relationship between the ability to identify the emotions of another, emotion regulation, friendship quality, and peer-identified prosocial and overtly aggressive behavior. Gender was examined for potential moderator status. Participating in the study were 114 adolescents, ages 12 to 15 years, from two public middle schools in San Diego. The Adolescent Multifactor Emotional Intelligence Scale (AMEIS) was used to assess emotional skills and knowledge. Peer nominations were used to assess emotional regulation, prosocial behavior, and overt aggression. Friendship quality was measured using the Friendship Qualities Scale. Participants completed the instruments in two group sessions. Findings indicated that the ability to identify others' emotions could be measured in a relatively straightforward and highly reliable way, but that the AMEIS demonstrated mixed effectiveness. Many of the emotional competence scores were not significantly related to each other and different scores had different relationships with the criterion variables. It was suggested that emotional competence is composed of a set of skills, and talking about those skills independently provides a more accurate portrayal and assessment of an individual. Control over one's emotions emerged as a key variable in maintaining positive social interactions. Early adolescents who were better able to control their emotional displays reported greater friendship quality, behaved in prosocial ways, and were less aggressive in relation to their peers than those who were less adept at this. Emotion regulation was not related to friendship quality or to proactive prosocial behavior, although those who did better at recognizing others' emotions were more likely to have their peers report that they were warm and friendly and less likely to be aggressive. The hypothesized moderating role of gender was not supported. (Contains 24 references.) (KB)

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The Relationship Between Emotional Competence and Social Competence in Early Adolescence

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Many have argued that emotional competence and social competence should be closely related (e.g., Hubbard & Coie, 1994; Parker & Gottman, 1989; Saarni, 1999). Findings for young children support this hypothesis (Denham et al., 1990; Eisenberg et al., 1993; Fabes et al., 1999; Garner, 1996; Garner & Estep, 2000; Hubbard, 2001; Smith, 2001). Buhrmester (1996) provided correlational data to support the relationship between interpersonal competence and friendship quality in adolescence. The purpose of this study was to examine this relationship between the two sets of competencies further.

Although social competence has been researched with adolescents, it has been operationalized in many ways. Some regard it as popularity, some as peer acceptance, and some as friendship quantity. In conjunction with these various operational definitions, researchers have also used different ways of measuring social competence. Among these choices, friendship is the area which requires a greater degree of intimacy and interpersonal negotiation. In other words, friendship may involve more emotional work than peer acceptance or popularity. Thus, social competence in this study was examined in part through the lens of friendship and friendship quality.

In early adolescence children begin to focus increasingly on their peers for meeting socialization and emotional needs. For this reason it would seem that emotional competence and social competence in various aspects of peer relationships would be strongly related in this age group. The components of emotional competence which this study examined, namely, (a) the ability to discern other's emotions, and (b) emotional regulation, may have particularly important roles in the negotiation of friendships and other peer relationships for early adolescents. When friends become more salient to one's own development and relationships become more critical, then maintaining them also becomes important. The two emotional skills mentioned above are likely to be essential to developing and maintaining relationships.

Behavior with peers was also examined as an indicator of social competence. Prosocial behavior should relate positively to emotional competence (Eisenberg et al., 1997). Based on past findings (e.g., Eisenberg et al., 2000), we also expected that those who were high in emotional competence as assessed in this study would be low in aggressive behaviors, as these involve negative social interactions and imply poor emotional regulation.

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The problem of assessment of emotional competence is complex. Ideally, emotions should be examined within the context of interpersonal relationships, but assessing them in this manner confounds emotional competence with social/relational skills. Separating these two realms was a key goal in this study. Therefore, in this study, adolescents completed a new measure which purports to assess emotional skills and knowledge for adolescents, the Adolescent Multifactor Emotional Intelligence Scale (Caruso, Van Buren, Mayer, & Salovey, in press). This skill test assessed teens' thoughts and vocabulary about emotions rather than experience or expression of emotions. This seems to be the closest approximation of an emotional competence test available given the current status of the literature and the nature of emotional expression. Because this test is quite new, the present study also provided psychometric information about this measure. In addition, a pilot peer nomination measure was created to provide an auxiliary measure of emotion regulation and control. We hypothesized that, regardless of measurement method, emotion regulation and emotional knowledge would be positively related to peer nominations of prosocial behavior and a close friend's report of friendship quality, and negatively related to overtly aggressive behavior.

Finally, this study examined gender differences in the relationship between emotional competence and social competence. Researchers often point to the role that sex-role socialization may play in emotional development and friendships (e.g., Buhrmester, 1996; Custrini & Feldman, 1989; Maccoby, 1990; Saarni, 1999). They hypothesize that girls are socialized, partly through their friendships, to be regulated in their emotional expression, while boys are reinforced for more aggressive behavior aimed at meeting individual rather than relational needs. Given these socialization practices that affect individuals, it seems reasonable to expect that the relationship between emotional competence and social competence might differ for girls and boys.

Method

Design

A correlational design examined the relationship between the ability to identify the emotions of another, emotion regulation, friendship quality, and peer-identified prosocial and overtly aggressive behavior. Gender was also examined for potential moderator status.

Participants

Participants were recruited from two public middle schools in San Diego. A total of 114 children participated (ages 12-15) with the consent of their parents. Females comprised 58% of the sample. The participant group consisted primarily of Hispanic children (69%). Other ethnic groups represented included Filipino (10%), Mixed (11%), African-American/Black (4%), and European-American/White (3%), and "other" (3%).

Predictor Variables (Emotional Competence)

Adolescent Multifactor Emotional Intelligence Scale (AMEIS). The AMEIS was the primary instrument used to assess emotional skills and knowledge. The eight subtests of the test are Faces, Music, Designs, Stories, Synesthesia, Blends, Perspectives, and Managing (emotions).

The first three subtests each require that the participant rate the emotional content of the stimulus provided (photograph of a face, audiotaped music, or visual design on paper) on a 5-point rating scale. Participants rate six emotions for each stimulus, circling a number to indicate to what extent that emotion is present in that stimulus. The response options address the emotions of anger, sadness, happiness, disgust, fear, and surprise. The Stories subtest presents participants with vignettes and then asks them to respond to these using a 21-item emotion scale, again with a 5-point scale used to rate the likelihood of each emotion. The Synesthesia subtest asks the participant to imagine an event that would arouse a certain emotion and then requests their response on ten semantic-differential scales, such as warm-cold, sharp-dull. The Blends subtest requires that the participants answer eight multiple-choice items which present an emotion followed by four "answers." The correct answer is the one which most closely approximates the two emotions which comprise the blend which is the target emotion. For example, if the target emotion is sadness, then the response options might be, anger and surprise, fear and anger, disappointment and acceptance, or remorse and joy. The Perspectives subtest describes an event from two perspectives and then asks the participant to guess how each of the main characters feels. The Managing subtest presents hypothetical situations and has participants select the most effective response.

The authors of the AMEIS recommend scoring it by using consensus scoring. This means that a participant's correct response is judged by using the percentage of participants in the current sample who chose the same answer. Scores for each subtest are the proportions of participants who select each of the rating points. These scores are then converted to integers, i.e., a score of .33 becomes 3. Subtest scores are then converted to z-scores based on the sample being investigated. The subtest z-scores can be combined to form "branch scores" for Identifying Emotions, Understanding Emotions, Using Emotions, and Managing Emotions. They can also be combined to create a total score on the AMEIS. An alternative method of scoring, by assigning weights determined by experts, can be applied to some of the subtests as well. This study used consensus scoring except in instances in which this method yielded unreliable scores (see Results for details).

Peer nominations. Five peer nomination items were created for assessing emotion regulation and included on the peer nomination measure discussed below. These items were based on previous work by Shields and Cicchetti (1997), who outlined several skills involved in emotion regulation, including: a) can recover from stress, b) can admit negative feelings, and c) is warm/responsive. The five peer nomination items were: acts with respect toward others even when one feels strongly about something, can quickly calm down or get over something that makes one upset, expresses emotions that don't fit the situation, gets really upset/worried when in difficult situations, can reach out to others when they are upset.

Criterion Variables

Friendship Quality. This variable was measured using the Friendship Qualities Scale (Bukowski, Boivin, & Hoza, 1994), a self-report questionnaire designed to examine positive and negative features of friendships (see Appendix F). Participants filled out this scale based on a mutual friendship which was also high in liking. This scale was created for use either in conjunction with or independent of liking/friendship ratings by students, i.e., the participant can either imagine a good friend when completing the form or can fill out the form based on a

previously named friend. Its eight subscales are designed to assess five essential aspects of friendship, which are Companionship, Conflict, Help, Closeness, and Security. A total score was used in this study.

Prosocial Behavior and Overt Aggression. Prosocial and overtly aggressive behavior were assessed through peer nominations via the adapted Adolescent Peer Nomination Instrument (APNI). This instrument was based upon the Adolescent Peer Nomination Instrument used by Miller and Foster (2003). Although the instrument has traditionally been used to measure physical and relational aggression, it also includes items which measure prosocial behavior. Only the prosocial items (total of 8 items) and overt aggression items (total of 7 items) were administered for this study. With this instrument, participants nominated, from a list of their participating male and female peers, those individuals who displayed the behavior described in an item. Because prosocial and overt aggression scales on a similar peer nomination instrument have demonstrated good reliability and validity with individuals from 9 to 12 years (Crick & Grotpeter, 1995) as well as with high school students (Miller & Foster, 2003), it was assumed that they were appropriate for use with early adolescents as well.

Procedure

Participants completed the procedures in two group sessions. During the first session, the participants completed the AMEIS and indicated their closest friends from a list of all their same sex classmates who were participating in the study; close friends were defined as "kids you know very well, spend a lot of time with in and out of school, and who you talk to about the things that happen in your life" (Burhmester, 1990). In the second session, students complete the Friendship Quality Scale for a liked mutual friend. To be selected as a "liked mutual friend," (a) both parties had to circle each other's name, and (b) both parties had to rate the other 3 or higher on a 5-point liking scale (most ratings were 4 or 5). Participants also completed the APNI in session 2.

Results

Psychometric Analyses

AMEIS. In general, subtests of the AMEIS were reliable when attempting to measure the ability to identify emotions (from facial expressions, from ambiguous stimuli, and from hypothetical situations; see Table 1). A principal axis factor analysis on subscale scores also indicated that the subtests intended to assess this skill accounted for the most variance in scores on the test. An important caveat to this strength is that inferring emotions in real relationships involves many more sources of information than a written test can encapsulate. Although the ability to identify emotions on paper seems to be a unitary construct, that ability may not necessarily carry over into social functioning.

The AMEIS was disappointing in other areas. Specifically, the internal consistency of several of the subtests was low (see Table 1). One subtest (Blends) was dropped because its reliability was unacceptably low (i.e., < .20) even when troublesome items were dropped from the test. The one subtest designed to capture emotion regulation (Managing), an important component of emotional competence, performed quite poorly. The items which more most

problematic were those relating to hypothetical emotional situations with peers. When expert scoring was used with this subtest, the internal consistency improved, however, the answers given by the majority of the participants were most often the opposite of the answer which the experts selected as correct. The expert answers in each scenario were those responses which involved verbal expression of feelings and trying to make some restitution in a conflictual situation. In contrast, the course of action chosen by most of the participants in this study was not the one which focused on the verbal expression of feelings. For these participants, and perhaps for others in a largely Hispanic sample, talking about one's emotions directly may be less valued than other ways of handling them (reacting emotionally, ignoring emotions, analyzing the situation). This raises additional concerns regarding whether the content of this subtest is valid for use with a Hispanic sample.

The factor analysis of the AMEIS revealed a clear first factor that contained subtests assessing emotion recognition. Perspectives loaded highly on a second factor, but Synesthesia and Managing did not load highly on either factor. For this reason, only Factor 1 total scores and Managing total scores were used in analyses. Table 2 shows the intercorrelations among AMEIS subscales.

APNI. Validity of the prosocial and aggression scales of the APNI was assessed by conducting a common factor analysis which yielded four factors (see Table 3). Two factors were composed of prosocial items and two were composed of aggression items. The two prosocial scales were distinguished from one another in that the first one represents an active helping role and the second factor represents a more passive, friendly, warm stance toward others. The two aggression scales were distinct from one another in a similar way, in that one was composed primarily of items which suggest proactive aggression, "a relatively nonemotional display of injurious power that is clearly aimed at some external goal," and the other was composed primarily of items which suggest reactive aggression, "a less controlled outburst of anger and frenzy that appears to be a defensive reaction to some... frustration" (Dodge & Coie, 1987, p. 1147).

An exploratory factor analysis (common factor analysis) examined the five items assessing emotion regulation. This produced two factors. The first factor was composed of two items ("act with respect for others even when they feel very strongly about something," "can quickly calm down or get over something that makes them upset"), accounted for approximately 30% of the variance, and was labeled "emotion control." The second factor included two other items ("sometimes express emotions that don't fit the situation," "get really worried or upset when they are in difficult situations"), which were more related to "emotion expression." The second factor accounted for 24% of the variance. Interestingly, these two subscales were not significantly correlated, providing further evidence that they capture unique aspects of the emotion regulation construct. The fifth item loaded on both factors and was ambiguously worded, so this item was dropped. Only one of the correlations between the emotion control and emotion expression scores and AMEIS subscales was statistically significant (see Table 2).

Hypothesis Testing

Hierarchical multiple regression analyses were conducted to test the hypotheses that indicators of emotion knowledge and emotion regulation would predict various indicators of social competence. For each analysis, gender was entered first, followed by the predictor variables of interest, and finally interaction terms to test for the moderating effect of gender. An initial set of analyses used the AMEIS Factor 1 and Managing scores as predictors. A second set of analyses was identical, except that they used the new peer nomination Emotion Control and Emotional Expression scales as predictors.[1] Table 4 summarizes the findings of these analyses by indicating significant unique relationships between each of the indicators of emotional competence and each criterion variable. Except in one instance (described below), gender did not act as a significant moderator in any of these analyses.

We hypothesized that the ability to monitor the emotions of others and the ability to regulate one's own emotions would predict the level of friendship quality. This hypothesis was supported in part. The ability to regulate one's own emotions, as measured by the Managing subtest of the AMEIS and the emotion control scale of the APNI, predicted higher friendship quality. No support was found for the relationship between the ability to monitor the emotions of others and friendship quality.

We also expected that participants' ability to monitor the emotions of others and their ability to regulate their own emotions would predict their level of prosocial behavior. This hypothesis was partially supported. The ability to monitor the emotions of others (Factor 1 of the AMEIS), and the ability to regulate one's own emotions (emotion control as measured by the APNI) significantly predicted scores on the peer nomination scales which measured friendly, warm prosocial behavior.

We predicted that gender would moderate the relationships predicted by each of the previous two hypotheses, i.e., these relationships would be different for boys and girls. Although gender had a significant main effect in each of the regressions, the hypothesized moderating relationship was not supported. In the one regression where an interaction between gender and one of the predictors (Managing subtest of the AMEIS) was significant in predicting friendly prosocial behavior, the relationship did not support the hypothesis. For male participants the relationship between Managing scores and scores on the proactive prosocial subscale was not significant. For female participants, the correlation between these variables was significant but negative, indicating that as scores on the Managing subtest increased, scores on the proactive prosocial scale went down. This relationship was unexpected because the ability to regulate one's own emotions should correlate positively with level of prosocial behavior. This may be best explained as further evidence of the problems with the Managing subtest.

Finally, we examined predictors of aggression. Aggression variables were log transformed to reduce violations of assumptions of regression. For both reactive and proactive aggression, gender and Factor 1 of the AMEIS were significant predictors. Thus the ability to

[1] For the analyses of friendship quality, the *n* was reduced to 89 because (a) some participants did not have mutual friends among the participants, and (b) when two participants rated the same friend, their data were nonindependent, so only one person's data were used in the analyses.

monitor the emotions of others significantly (Factor 1) predicted scores on the reactive and proactive aggression scales. The better participants were at identifying the emotions of others, the less likely they were to have high scores relating to aggression (of any type). Additionally, boys scored higher on both of the aggression scales than girls did. The Managing subtest of the AMEIS did not contribute significantly to the variance in either of the aggression scales.

APNI emotion scales were also log transformed for the regressions. Low rates of emotion control and high scores on emotional expression on the APNI uniquely and significantly predicted reactive aggression, but only emotional expression predicted proactive aggression scores.

Additionally, ethnicity was examined for moderator status by running each of the main analyses without gender and with ethnicity (dummy coded as Hispanic or not Hispanic) entered at step one and the interactions between ethnicity and the predictor variables entered in the final step. No significant findings involving ethnicity resulted.

Discussion

One of the most important lessons of this study relates to measurement of constructs related to emotional competence. Appropriate measurement of an elusive construct such as emotional competence requires attention to the best way of capturing different aspects of the construct. Although some elements of this construct, such as the ability to identify the emotions of others, may be measured in a relatively straightforward and highly reliable way (although their validity has not been proven), other elements (such as emotion regulation) require more attention.

The measure of emotional abilities (AMEIS) used in this study demonstrated mixed effectiveness. However, ability models used to assess emotional intelligence have been effective in previous research (Caruso et al., in press; Mayer et al., 2000). This type of measure provides a unique perspective on the emotional competence construct because it does not include measures of personality traits and because it is slightly more sophisticated than self-report measures (Mayer et al., 2000). However, it is clear that better measures in this area are needed, particularly with regard to emotion regulation, a key component of emotional competence. Peer reports proved more valuable for assessing aspects of emotion regulation in this study than did the Managing subtest, and should be explored further for their psychometric adequacy. Using multiple measures such as direct observation (Fabes et al., 1999; Garner, 1996), teacher reports (Shields & Cicchetti, 1999; Schwartz, 2000), and an ability measure (Mayer et al., 2000) would provide important validity information with regard to the measurement of emotion regulation.

The results of this study support the assertion of many theorists that emotional competence generally and emotion regulation in particular are not unitary constructs. Factor analyses and correlations indicated that many of emotional competence scores were not significantly related to each other. Furthermore, different scores had different relationships with the criterion variables. Thus, to say that one individual is adept at or lacking in emotion regulation can be misleading. One may be gifted at controlling emotional display, which can be an adaptive skill, while simultaneously compromised when it comes to emotional expression, which is also sometimes necessary. This is an important concept for theorists, researchers, and

clinicians alike. Because emotion regulation is composed of a set of skills, talking about those skills independently provides a more accurate portrayal and assessment of an individual. Similarly, research that examines different components of emotional competence separately will provide a more nuanced view of the skills subsumed under this broad construct.

Additionally important were the findings that qualified the discussion of prosocial behavior and aggression. Both of these constructs also separated into constituent parts that, although related to each other, were sometimes differentially related to the skills involved in emotional competence. Similarly, this has implications for investigators at all levels of inquiry. Emotional skills required to manage close relationships, for example, may not be the same skills required to control anger and avoid aggression.

Regarding the relationship between emotional competence and social competence, the findings in this investigation point to control over one's emotions as a key variable in maintaining positive social interactions. Early adolescents who were able to control their emotional displays reported greater friendship quality, behaved in prosocial ways, and were less aggressive in reaction to their peers than those who were less adept at this. With regard to friendship quality the finding is strengthened by the fact that predictor variables and criterion variable were measured differently and thus none of the relationships uncovered can be attributed to shared method variance.

Emotion recognition, in contrast, was not related to friendship quality or to proactive prosocial behavior, although those who did better at recognizing the emotions of others were more likely to have their peers report that they were warm and friendly and less likely to be aggressive. This may be because friendship management and the kinds of interpersonally considerate behaviors included on the proactive prosocial scale require more sophisticated emotion-related skills than do friendly prosocial behavior and suppression of aggression. The fact that emotion regulation skills were more strongly related to these variables lends some support to this explanation, as it could readily be argued that emotion regulation involves more complex skills than correct knowledge of feelings associated with facial expressions, pieces of music, and abstract designs.

The correlational design of this study does not permit cause-effect inferences from the data. Nonetheless, the findings tentatively support the importance of assessing and training early adolescents to regulate their emotional displays. Because children who are aggressive or who have problems with peer adjustment often come to the attention of school and mental health professionals for treatment, assessing their ability to use emotion control and enhancing this ability could be a useful clinical tool. Assessment and treatment should clearly differentiate between types of emotional skills with which the child has difficulty, as well as the types of relationships that seem to be impaired. Treatment outcome studies that examine the effect of training emotion management skills on aspects of social competence would provide important information in this area, and would provide stronger evidence regarding causal connections between emotional control, emotional knowledge, and interpersonal behavior. In addition, longitudinal studies would provide needed information on the ways in which these skills develop over time. Longitudinal studies are particularly important given the lack of research in this area with adolescents.

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Table 1
Internal Consistency and Factor Loadings for Subtests of AMEIS (Rotated)

	Coeff. alpha before deleting items	Coeff. alpha after deleting items	Factor 1 loading	Factor 2 loading
Subtest				
Faces	.84	n/a	.808	.129
Designs	.86	n/a	.760	.009
Stories	.64	.71	.619	.292
Synesthesia	.86	n/a	.252	.295
Perspectives	.62	.67	.270	.806
Managing	.42	.63	-.001	-.323

Note: Items deleted from Stories, Perspectives, and Managing Emotions subtests due to low initial internal consistency. Managing also rescored with expert scoring to improve internal consistency. Blends subtest dropped due to low reliability. Eigenvalue for Factor 1 was 2.55, for Factor 2 was 1.12.

Table 2

Correlations among the AMEIS Subscales and Peer Nomination Measures of Emotional Competence

	Designs	Stories	Synesthesia	Perspectives	Managing	Emotion Control	Emotion Expression
AMEIS:							
Faces	.64**	.55**	.19*	.31**	-.13	-.05	-.10
Designs		.47*	.24**	.30**	.00	.09	-.15
Stories			.29**	.40**	-.06	.17	-.03
Synesthesia				.30**	-.08	.20*	.12
Perspectives					-.28**	.11	.03
Peer nominations:							
Emotion Control							.11
Emotion Expression							

Note: $N = 114$. * $p < .05$. ** $p < .01$.

Table 3

Factor Loadings for APNI Prosocial and Aggression Items (Rotated)

Items	Factor 1	Factor 2	Factor 3	Factor 4
Threaten physical harm to get own way	**.79**	-.15	.00	.31
Physical intimidation to get own way	**.87**	.00	.00	.11
Physical intimidation for retribution	**.81**	-.09	-.11	.26
Hitting to get what they want	**.76**	-.13	-.05	.25
Dependable	-.01	**.76**	.12	-.24
Kind	-.29	**.68**	.30	-.17
Welcoming	-.05	**.86**	.32	-.08
Good listeners	-.16	**.74**	.27	-.02
Include in conversations	-.05	.24	**.73**	-.09
Lend money	-.05	.20	**.59**	-.19
Invite others to activities	-.11	.12	**.66**	.19
Give advice	-.05	.24	**.80**	-.14
Threaten physical harm for retribution	.30	-.18	.00	**.81**
Hitting for retribution	.44	-.20	-.18	**.67**
Push and shove	.40	-.11	-.09	**.66**

Note: Eigenvalues, Factor 1 = 5.95, Factor 2 = 2.89, Factor 3 = 1.45, Factor 4 = 1.09

Table 4
Summary of Significant Unique Predictors (sr^2s) of Friendship Quality, Aggression, and Prosocial Behavior

	CRITERION VARIABLE				
	Friendship quality	Proactive prosocial	Friendly prosocial	Proactive aggression	Reactive aggression
PREDICTOR:					
Gender	.09**	.06**	.21**	.12**	.08**
AMEIS:					
Factor 1[a]	-	-	.07**	.08**	.04*
Managing Emotion	.07**	-	-	-	-
Peer nominations:					
Emotion Control	.05*	.43**	.24**	-	.12**
Emotion Expression	-	-	-	.19**	.10**

*p < .05. ** p < .01.

[a] AMEIS Factor 1 assesses emotion recognition.

Note. Gender entered first, then either the AMEIS or the peer nomination subscales entered as a block. Aggression scores log-transformed; emotional control and emotion regulation log-transformed only for analyses of aggression. Squared semi-partial correlations for gender are from Step1; girls scored higher on friendship quality and prosocial scales and lower on aggression scales than boys. Direction of significant relationships as expected (positive betas for relationships between emotional competence and positive indicators, negative betas with aggression).

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